

IN THE CLAIMS:

Please cancel claims 1-83 and replace them with new claims 84-129:

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84. (New). A method for generating a woody perennial breeding line, comprising:

- a) selecting one or more woody perennial plants comprising at least one allele associated with male sterility;
- b) selecting one or more woody perennial plants which are capable of hybridisation with the plant(s) selected in step (a) and which comprise at least one allele associated with at least one target inheritable trait;
- c) crossing the one or more plants selected in step (a) with the one or more plants selected in step (b);
- d) selecting progeny plants which have one or more desired traits and which comprise at least one allele associated with male sterility and at least one allele associated with the at least one target trait;
- e) selecting progeny plants which are homozygous for male sterility, which comprise at least one allele associated with the at least one target trait and which have one or more desired traits.

85. (New). The method of claim 84, wherein step (d) further comprises allowing at least one of the progeny plants selected at step (d) which is heterozygous for male sterility to self-fertilise to create a subsequent progeny for selection at step (e).

86. (New). The method of claim 84, wherein the flowers of one or more of the progeny selected at step (d) are fertilised with a mixture of pollen obtained from a plurality of the progeny selected at step (d) to create a subsequent progeny for selection at step (e).

87. (New). The method of claim 84, wherein step (d) further comprises crossing at least one of the progeny plants selected at step (d) with one or more

woody perennial plants of known genotype with respect to a desired set of inheritable traits and which comprises at least one allele associated with male sterility to create a subsequent progeny for selection at step (e).

88. (New). The method of claim 84, wherein the one or more woody perennial plants selected in step (a) are male sterile.

89. (New). The method of claim 86, wherein the one or more woody perennial plants of step (a) are grown in an isolated block, with the one or more woody perennial plants of step (b).

90. (New). The method of claim 84, wherein (i) a plurality of woody perennial plants are selected in step (a), and the flowers of the one or more woody perennial plants selected in step (b) are fertilised with a mixture of pollen collected from the woody perennial plants of step (a) or (ii) a plurality of woody perennial plants are selected in step (b), and the flowers of the one or more woody perennial plants selected in step (a) are fertilised with a mixture of pollen collected from the woody perennial plants of step (b).

91. (New). The method of claim 89, wherein the plurality of woody perennial plants selected in step (a), step (b) or both step (a) and step (b) comprise more than one variety of woody perennial plant.

92. (New). The method of claim 90, wherein the plurality of woody perennial plants selected in step (a), step (b) or both step (a) and step (b) comprise more than one variety of woody perennial plant.

93. (New). The method of claim 84, wherein one woody perennial plant is selected in step (a), step (b) or both step (a) and step (b).

94. (New). The method of claim 84, wherein the one or more woody perennial plants selected in step (a), step (b) or both step (a) and step (b) are of known genotype for a set of desired inheritable traits.

95. (New). The method of claim 84, wherein the one or more woody perennial plants selected in step (a) , step (b) or both step (a) and step (b) are homozygous for each trait within a set of desired inheritable traits.

96. (New). The method of claim 84, wherein one or more of the plants of step (b) are heterozygous for male sterility.

97. (New). The method of claim 84, wherein the one or more plants of step (b) are derived from a plant comprising fewer chromosomes than the plant of step (a) by increasing its ploidy.

98. (New). The method of claim 97, wherein a plurality of plants are selected in step (a), step (b), or both, and a mixture of pollens from these plants are employed in the cross of step (c).

99. (New). The method of claim 84, wherein step (d) further comprises one or more sequential back-crosses of one or more progeny plants selected at step (d) with one or more woody perennial plants of known genotype with respect to a desired set of inheritable traits, and selecting resulting progeny plants which comprise at least one allele coding for male sterility and at least one allele associated with the at least one target trait and which are of known genotype for the desired set of inheritable traits.

100. (New). The method of claim 99, wherein the one or more woody perennial plants used for backcrossing to the progeny of step (d) are homozygous for each trait within a set of desired inheritable traits.

101. (New). The method of claim 99, wherein the one or more woody perennial plants used for backcrossing to the progeny of step (d) are heterozygous for male sterility.



102. (New). The method of claim 99, wherein the one or more woody perennial plants used for backcrossing to the progeny of step (d) are the same, or are of the same variety as the woody perennial plant of step (a).

103. (New). The method of claim 99, wherein the one or more woody perennial plants used for backcrossing to the progeny of step (d) are the same, or are of the same variety as the one or more woody perennial plants of step (b).

104. (New). The method of claim 84, wherein at least one target trait comprises low chill requirement, disease/pest resistance, or both.

105. (New). The method of claim 84, wherein desired inheritable traits are selected from one or more of the group comprising: low chill requirement; high chill requirement; disease/pest resistance; fruit development period; fruit acidity; fruit shape; fruit size; fruit flesh texture; fruit total solids (sugars); fruit pigmentation; fruit flesh pigmentation; fruit skin pubescence; stone adhesion to the fruit; tree habit; tree size; tree growth rate; spur morphology/ habit; pedicel length; pedicel thickness; suture presence/absence.

106. (New). The method of claim 84, wherein all the plants are of the genus *Prunus*.

107. (New). The method of claim 106, wherein the woody perennial plant of step (a) is selected from *Prunus persica*, *P. persica* var *nucipersica*, *P. persica* var *nectarina*, *P. salicina*, *P. avium*, *P. cerasus*, *P. domestica*, *P. amygdalus*, and *P. armeniaca*.

108. (New). The method of claim 106, wherein the one or more woody perennial plants of step (a), step (b) or both step (a) and step (b) is/are selected from peach or nectarine varieties.

109. (New). The method of claim 106, wherein the one or more woody perennial plants of step (a), step (b) or both step (a) and step (b) is/are selected from plum or apricot varieties.

110. (New). The method of claim 109, wherein step (d) further comprises one or more sequential back-crosses of one or more selected progeny plants with the pollen of a plurality of plum or apricot varieties.

111. (New). The method of claim 106, wherein the one or more woody perennial plants of step (a) are of a different species to the one or more woody perennial plants of step (b), but the plants of step (a) and step (b) are sufficiently related to be able to hybridise.

112. (New). The method of claim 106, wherein step (d) further comprises one or more sequential back-crosses of one or more selected progeny plants with one or more woody perennial plants which are selected from peach, nectarine, plum cherry, almond or apricot varieties.

113. (New). The method of claim 84, wherein the resulting woody perennial breeding line is male sterile, homozygous for said one or more desired inheritable traits, and homozygous for at least one allele associated with said at least one target trait.

114. (New). A male sterile woody perennial plant breeding line comprising one or more target inheritable traits and one or more desired inheritable traits, generated by directed breeding to transfer male sterility from a woody perennial plant to a woody perennial plant having one or more desired inheritable traits.

115. (New). The male sterile woody perennial plant breeding line of claim 114, which is a *Prunus* variety selected from peach, nectarine, plum, cherry, apricot or almond varieties.

116. (New). The male sterile woody perennial plant breeding line of claim 114, which is an interspecific hybrid.

117. (New). The male sterile woody perennial plant breeding line of claim 114, wherein the at least one target inheritable trait and the one or more desired inheritable traits are selected from one or more of the group comprising: low chill requirement; high chill requirement; disease/pest resistance; fruit development period; fruit acidity; fruit shape; fruit size; fruit flesh texture; fruit total solids (sugars); fruit pigmentation; fruit flesh pigmentation; fruit skin pubescence; stone adhesion to the fruit; tree habit; tree size; tree growth rate; spur morphology/ habit; pedicel length; pedicel thickness; suture presence/absence.

118. (New). The male sterile woody perennial plant breeding line of claim 117, wherein the one or more target traits comprise low chill requirement, disease/pest resistance, or both.

119. (New). The male sterile woody perennial plant breeding line of claim 114, which is male sterile, homozygous for a desired set of inheritable traits, and homozygous for at least one allele associated with a target trait.

120. (New). A method for generating a woody perennial variety comprising one or more target inheritable traits and a desired set of inheritable traits, comprising crossing a first selected woody perennial plant variety with a desired set of inheritable traits, or a group of plants sharing a set of desired inheritable traits, with a second selected woody perennial plant which is homozygous for male sterility, and homozygous for one or more target traits.

121. (New). The method of claim 120, wherein the second plant is of known genotype with respect to the desired set of inheritable traits of the first selected woody perennial plant or group of plants sharing a set of desired inheritable traits.

122. (New). The method of claim 120, wherein the first selected woody perennial plant or group of plants, or the second plant, or both the first plant or group

of plants and the second plant is/are homozygous for each of the traits in the desired set of inheritable traits.

123. (New). The method of claim 120, wherein the second woody perennial plant is a male sterile woody perennial plant breeding line according to claim 119.

124. (New). The method of claim 120, wherein the first selected woody perennial plant variety with a desired set of inheritable traits, or group of plants sharing a set of desired inheritable traits, are planted in an orchard, surrounding the second plant.

125. (New). The method of claim 120, wherein the flowers of the second plant are artificially fertilised with pollen from the first selected woody perennial plant variety with a desired set of inheritable traits, or a mixture of pollen from the group of plants sharing a set of desired inheritable traits.

126. (New). The method of claim 120, wherein all of the plants are selected from *Prunus* plants which are, or are essentially peach, nectarine, plum, cherry, apricot or almond varieties.

127. (New). A woody perennial plant variety expressing at least one target inheritable trait and a set of desired inheritable traits generated by crossing a male sterile woody perennial plant breeding line according to claim 120 having said at least one target inheritable trait with a woody perennial plant variety having said set of desired inheritable traits but lacking said at least one target inheritable trait.

128. (New). The woody perennial plant variety of claim 127, which is selected from *Prunus* plants which are, or are essentially peach, nectarine, plum, cherry, apricot or almond varieties.

129. (New). The woody perennial plant variety of claim 127, which expresses at least low chill, disease/pest resistance, or both as target traits.